

Appl. No. 10/047,613
Amdt. Dated December 24, 2003
Reply to Office Action of September 24, 2003

REMARKS

Reconsideration of the application is requested.

Applicants acknowledge the Examiner's confirmation of receipt of applicants' certified copy of the priority document for the German Patent Application 101 02 458.4, filed January 15, 2001 supporting the claim for priority under 35 U.S.C. § 119.

Claims 15-39 remain in the application. Claims 15, 17-23, 25, 28-30, 33, and 36-39 have been amended. *Claims 1-14 were previously canceled in a preliminary amendment to facilitate prosecution of the instant application.*

In item 2 on page 2 of the above-identified Office Action, claims 15-39 have been rejected as being indefinite under 35 U.S.C. § 112, second paragraph.

More specifically, the Examiner states that "decoloring absorber" is indefinite. Moreover, the Examiner believes that the term "decoloring absorber" as used in the claim is allegedly only an intended function, which is not supported in the claim by structure. As such, the Examiner asserts that the claim is indefinite, because it is not clear as to what structure applicant intends to claim.

Appl. No. 10/047,613
Amdt. Dated December 24, 2003
Reply to Office Action of September 24, 2003

The term "decoloring absorber" was originally derived from the translation of "ausbleichbares Absorbermittel" in the previously mentioned German Patent Application. Upon further review of the translation, "ausbleichbares Absorbermittel" is more accurately translated as "bleaching absorber" or "an absorber for bleaching by decoloring" and corresponding changes have been made in the claims and specification. See the enclosed pages from the German to English chemical dictionary¹. For example, claims 15, 36, 37, 38, and 39 have been amended to include "at least one bleaching absorber", "at least one absorber means for bleaching by decoloring", "at least one absorber layer for bleaching", "at least one absorber configured to bleach by decoloring", and "at least one absorber for bleaching by decoloring" respectively.

Support for these changes may be found on page 2, 6-8, and 10 of the specification of the instant application and are therefore not new matter. As can be seen, the claims each include both structure and function, namely an absorber for bleaching or a bleaching absorber. As such they cannot be considered indefinite. It is also noted that MPEP 2163.07 provides for this situation:

Where a U.S. application as originally filed was in a non-English language and an English translation thereof was subsequently submitted pursuant to 37 CFR 1.52 (d), if there is an error in the English translation,

¹ DICTIONARY OF CHEMISTRY AND CHEMICAL ENGINEERING 14, 79 (2d ed. 1978).

Appl. No. 10/047,613
Amdt. Dated December 24, 2003
Reply to Office Action of September 24, 2003

applicant may rely on the disclosure of the originally filed non-English language U.S. application to support correction of an error in the English translation document.

Accordingly, the applicant strongly disagrees with the position that the term "decoloring absorber" or "bleaching absorber" (as currently used in the amended form) is indefinite, and respectfully traverses the rejection. This is especially true in light of the exhaustive disclosure provided in the specification of the instant application. For example, on page 2 in the paragraph starting on line 19, the instant application provides the following description:

Bleaching absorbers or bleaching quantum films are known per se as optical absorbers with nonlinear absorption behavior. The transmission of the bleaching absorbers depends on the irradiated radiation intensity. With increasing power densities, the absorption decreases; at very high power densities, the absorber is substantially transparent. The use of absorber means for semiconductor lasers is known in principle (for example from US-A-5,574,738), these absorber means only being used to absorb certain wavelengths of the radiation, to achieve self-modulation of the laser diode in the GHz range.

In addition, the last paragraph on page 6 indicates that in one embodiment the "bleaching absorber means" is an 8 nm thick $\text{In}_{0.2}\text{Ga}_{0.8}\text{As}$ quantum film. The embodiment is further described on page 7, where the bleaching by decoloring relationship relative to the transparency of the absorber means is clarified:

The transparency of the absorber means 5 increases with increasing irradiation intensity, so that at high intensities the absorber means is substantially

Appl. No. 10/047,613
Amdt. Dated December 24, 2003
Reply to Office Action of September 24, 2003

transparent. In the case of such quantum films, the intensity critical for the bleaching by decoloring lies around 1 kW/cm².

Moreover, the last two paragraphs on page 8 clarify how the relative position of the decoloring absorber within the standing wave field 100 help determine the average intensity needed to obtain the transparent state. Page 10 of the instant application states:

Alternative forms of construction than the configuration outlined, with a plurality of thin bleaching absorber layers or solid saturable structures, are of course possible. Similarly, the structure is not restricted to the InAlGaAs semiconductor system, but can also be realized for example in the material systems of InGaAsP (for example on an InP substrate) or InAlGaAsN (for example on a sapphire, SiC or GaAs substrate). The vertical laser structure can also be realized in II-VI semiconductor systems, such as ZnMgBeSSe for example.

It is accordingly believed that the specification and the claims meet the requirements of 35 U.S.C. § 112, second paragraph. The above-noted changes to the claims are provided solely for clarification or cosmetic reasons. The changes are neither provided for overcoming the prior art nor do they narrow the scope of the claim for any reason related to the statutory requirements for a patent.

In view of the foregoing, reconsideration and allowance of claims 15-39 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a

12-29-'03 10:32 FROM-Lerner & Greenberg

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Appl. No. 10/047,613
Amdt. Dated December 24, 2003
Reply to Office Action of September 24, 2003

telephone call so that, if possible, patentable language can
be worked out.

Please charge any other fees that might be due with respect
to Sections 1.16 and 1.17 to the Deposit Account of Lerner
and Greenberg, P.A., No. 12-1099.

Respectfully submitted,

Kyle H Flindt
For Applicants

Kyle H. Flindt
Reg. No. 42,539

KHF:cgm

December 24, 2003

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14

absondern – Absperrglied

absondern to separate, to abstract, to detach, to isolate, to segregate, (ausscheiden) to discharge, to excrete, to secrete
Absondern *n* isolating, separating
Absonderung *f* (Abtrennung) separation, (Sekretion) secretion
Absorbens *n* (pl. Absorbentia) absorbent [agent]
Absorber *m* (Kältemaschine) absorber
Absorberelement *n* (Reaktor) absorber device
Absorberregelung *f* (Kältemaschine) absorber control
absorbierbar absorbable
Absorbierbarkeit *f* absorbability
absorbiieren to absorb, to suck up, (Gase) to occlude
Absorbieren *n* absorbing
absorbierend absorbent, absorbing
Absorbierungskapazität *n* absorption capacity
Absorptiometer *n* absorptiometer
Absorptiometrie *f* absorptiometry
absorptiometrisch absorptiometric
Absorption *f* absorption, dielektrische ~ (Elektr.) dielectric absorption
Absorptionsachse *f* absorption axis
Absorptionsanlage *f* absorption equipment, absorption installation, absorption plant
Absorptionsapparat *m* absorption apparatus
Absorptionsbande *f* (pl. Absorptionsbände) absorption band
Absorptionsbehälter *m* absorption cell
Absorptionsbereich *m* absorption region
absorptionsfähig absorbent, absorptive, capable of absorbing
Absorptionsfähigkeit *f* absorptive capacity, degree of absorption
Absorptionsfaktor *m* absorption factor
Absorptionsfarbe *f* absorption color
Absorptionsfilter *n* absorption filter
Absorptionsflasche *f* absorption bottle, absorption flask
Absorptionsflüssigkeit *f* absorption liquid, washing liquid
Absorptionsgefäß *n* absorption vessel
Absorptionsgeschwindigkeit *f* absorption velocity
Absorptionsgesetz *n* law of absorption
Absorptionsgewebe *n* absorbent tissue, absorbing tissue
Absorptionsgleichgewicht *n* absorption equilibrium
Absorptionsgrenze *f* absorption limit
Absorptionshygrometer *n* absorption hygrometer
Absorptionsindex *m* (Opt) absorption index
Absorptionskältemaschine *f* absorption refrigeration machine
Absorptionskante *f* (Atom) absorption edge, absorption limit, (Spekt) absorption discontinuity, absorption edge, absorption limit
Absorptionskeil *m* absorption wedge

Absorptionskoeffizient *m* absorption coefficient
Absorptionskohle *f* absorptive charcoal
Absorptionskolonne *f* absorption column, washing column
Absorptionskraft *f* absorptive power
Absorptionsküvette *f* absorption cell
Absorptionsleistung *f* absorptive capacity
Absorptionslinie *f* absorption line
Absorptionsmaschine *f* absorption machine
Absorptionsmeßgerät *n* absorptiometer
Absorptionsmessung *f* absorption measurement
Absorptionsmittel *n* absorbent, absorber, absorbing medium
Absorptionspipette *f* absorption pipet(te)
Absorptionsquerschnitt *m* absorption cross section
Absorptionsraum *m* absorption chamber
Absorptionsröhre *f* absorption-tube
Absorptionsschlange *f* absorption coil
Absorptionsspektralanalyse *f* absorption-spectrum analysis
Absorptionsspektrum *n* absorption spectrum
Absorptionsprung *m* absorption discontinuity
Absorptionsstreifen *m* absorption band
Absorptionsstrom *m* (Elektr) absorption current
Absorptionsturm *m* absorption column, absorption tower
Absorptionsverbindung *f* (Chem) absorption compound
Absorptionsverfahren *n* method of absorption, process of absorption
Absorptionsverlust *m* absorption loss
Absorptionsvermögen *n* absorptive capacity, absorption factor, absorptive power, absorptivity
Absorptionswärme *f* heat of absorption
Absorptiv *n* absorbate
abspachteln to scrape [off]
abspänen to chip
abspaltbar cleavable, detachable, separable
Abspaltbarkeit *f* (des Elektrons) splitting off (of the electron)
abspalten to split off, to cleave, to crack, to eliminate, to remove, to separate
Abspalten *n* splitting off, cracking, eliminating, separating
abspaltend cleaving, cracking, splitting
Abspaltung *f* splitting off, cleavage, elimination, removal, separation
Abspannen *n* eines Werkzeuges stripping (of a mold)
absperrbar capable of being locked
Absperrdüse *f* shut-off nozzle
absperrn to bar, to block, to cut off, to isolate, to shut off
absperrend blocking
Absperrflüssigkeit *f* sealing liquid, confining liquid
Absperrglied *n* shut-off device, sluice, valve

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Aurisulfid *n* (Gold(III)-sulfid) auric sulfide,
gold trisulfide
Auriverbindung *f* (Gold(III)-verbindung) auric compound
Aurocantan *n* aurocantane
Aurochin *n* aurochin, quinine p-aminobenzoate
Aurochlorid *n* (Gold(I)-chlorid) aurous chloride,
gold monochloride
Aurochlorwasserstoffsäure *f* chloroauric(I) acid,
chloroaurous acid
Aurocyanid *n* (Gold(I)-cyanid) aurous cyanide,
gold(I) cyanide
Aurocyanwasserstoffsäure *f* aurocyanic acid,
cyanoauric(I) acid
Aurofels *n* (Haarbeize) aurofels
Aurokaliumcyanid *n* potassium aurocyanide,
potassium cyanoaurate(I)
Auron *n*-aurone
Auronalfarbe *f* auronal dye
Aurooxid *n* gold(I) oxide, aurous oxide
Aurophenin *n* aurophenine
Aurora-Linie *f* (Spektr) auroral line
Aurorhodanwasserstoffsäure *f* aurothiocyanic acid, thiocyanatoauric(I) acid
Aurotin *n* aurotine
Auroverbbindung *f* (Gold(I)-Verbindung) aurous compound, gold(I) compound
Auroxanthin *n* auroxanthin
Aurum *n* (Lat) gold
ausäthern to extract with ether, to etherize, to shake out with ether
Ausäthern *n* extracting with ether
ausätzen to cauterize; to destroy by caustics, to discharge
Ausätzung *f* cauterization
ausarbeiten to complete, to finish, to perfect, to work out
ausarten to degenerate
ausatmen to exhale, to expire
Ausatmung *f* expiration
ausbalancieren to equilibrate, to balance, to compensate, to counterbalance, to counterpose
Ausbalancierung *f* balancing, counterbalancing, equilibration
Ausbau *m* development, completion, extension
ausbauchen to emboss, to hollow out, to swell
Ausbauchung *f* bulge, camber, widening
ausbauen to complete, to improve; (Teile) to disassemble, to dismount
ausbedingen to reserve, to stipulate
ausbeizen to remove with corrosive
ausbessern to repair
ausbesserungsbedürftig in want of repairs
Ausbesserungsmasse *f* lining material for repairs
Ausbesserungswerkstatt *f* repair shop
ausbeulen to round out, to swell out
Ausbeute *f* conversion (polymerization); efficiency, gain, output, profit, (Chem) yield,

Aurisulfid – Ausbreitungswiderstand

photoelektrische ~ photoelectric yield,
photoelectric emissivity
Ausbenteerhöhung *f* increase in yield
Ausbeutegleichung *f* (Atom) gain equation
Ausbeutekurve *f* yield curve
Ausbeutematrix *f* efficiency matrix
Ausbeutemessung *f* yield measurement
Ausbeutetensor *m* efficiency tensor
Ausbeutung *f* exploitation, utilization, (Bergbau) winning, working
ausbiegen to bend out, to deflect, to turn out
Ausbiegung *f* deflection
ausbilden to develop, to improve
Ausbildung *f* formation; development; education, ~ der Asymmetrie formation of asymmetry
Ausblasedampf *m* exhaust steam
Ausblasenhahn *m* blow-off cock, drain cock
Ausblasleitung *f* escape pipe, blow-off main, blow-off pipe
ausblasen (Dampf) to blow off, to exhaust, (Kerze) to blow out
Ausblasen *n* blowing out
Ausblaseventil *n* blow-off valve
ausbleiben to vanish, to disappear
Ausbleiben *n* absence, disappearance
ausbleichen to discolor, to bleach by decoloring, to fade, to lose color
Ausbleichchen *n* bleaching, ~ durch Abgase *f*/gas fume fading
Ausbleichverfahren *n* bleaching-out process
ausbleien to line with lead
ausblenden (Elektr) to shield, (Opt) to collimate
Ausblick *m* outlook, prospect
ausblühen (Chem) to effloresce
Ausblühen *n* bloom, blooming, efflorescing
Ausblühung *f* bloom, efflorescence, (Schweiß) blistering
Ausbluten *n* bleeding (of colors)
Ausblutung *f* bleeding (of colors)
ausbohren to bore out, to drill
ausbrechen to break out
Ausbrechen *n* break-away
ausbreiten to spread out, to display, to extend, to flatten; to permeate
Ausbreiteprobe *f* flattening test, flow test, hammering test
Ausbreitung *f* diffusion; flattening out; propagation
Ausbreitungsfeld *n* (Comp) propagate field
Ausbreitungsgeschwindigkeit *f* velocity of propagation
Ausbreitungsparameter *m* propagation parameter
Ausbreitungsproblem *n* propagation problem
Ausbreitungsrichtung *f* direction of propagation
Ausbreitungswiderstand *m* diffusion resistance, resistance to spreading

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<p>I hereby certify that this paper for Serial No. 10/347,613 is being transmitted to Technology Center #900 of the United States Patent and Trademark Office on the date shown below.</p> <p><u>Karl H. Tiefenbach</u> <u>Received by fax</u> Karl H. Tiefenbach Date</p>		
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE		
<p>Applic. No. : 10/347,613 Confirmation No.: 5759 Applicant : Karl Jozchik, Zobelinc, et al. Filed : January 15, 2002 Art Unit : 2828 Examiner : James W. Davis Title : Vertical Laser Diode with Means for Beam Profile Forming Docket No. : MEN-IT 213 Customer No. : 26131</p>		
AMENDMENT		
<p>Mail Stop Non Fee Amendment Attn: Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450</p> <p>Sir:</p> <p>Responsive to the Office Action dated September 24, 2003 kindly amend the above-identified application as follows:</p> <p>Amendments to the Specification begin on page 2 of this paper.</p> <p>Amendments to the Claims are reflected in the listing of claims which begins on page 10 of this paper.</p> <p>Remarks/Arguments begin on page 17 of this paper.</p>		

- 1 -

PAGE 19 *RCVD AT 12/29/2003 4:17:07 PM [Eastern Standard Time]* SVR:USPTO-EFXRF-1/0 *DNIS:8729306 *CSID:+9549251101 *DURATION (mm:ss):07-14

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12-24-03 10:35 Lerner-Greenberg -9549251101 T-382 P26/24 U-245 =====>	<p>12-24-03 10:35 Lerner-Greenberg -9549251101 T-382 P26/24 U-245</p> <p>App. No. 10/097,013 Filing Date December 14, 2003 Reply to Office Action of September 24, 2003</p> <p>vertical laser diode with an integrated decolorizing absorber layer 50 with an <u>bleaching</u> absorber means 5, the vertical laser diode having, as the lowermost layer, an n-doped GaAs substrate 1, which is provided with a GaN/AlGaN contact 10.</p> <p>Please replace the paragraph beginning on page 6, line 6 with the following amended paragraph:</p> <p>The structure outlined in figure 1 of a vertical laser diode with an integrated decolorizing <u>bleaching</u> absorber layer 50 with an absorber means 5 has, as the lowermost layer, an n-doped GaAs substrate 1, which is provided with a GaN/AlGaN contact 10.</p> <p>Please replace the two paragraphs beginning on page 6, line 28 and page 7, line 1 with the following two amended paragraphs:</p> <p>Arranged in the absorber layer 50 as the decolorizing <u>bleaching</u> absorber means 5 is an 8 nm thick In0.2Ga0.8As quantum film. This is surrounded on both sides by in each case 10 nm thick GaAs barriers, these layers all having a doping of p = 5·10¹⁷ cm⁻³ (see figure 2).</p> <p style="text-align: center;">- 6 -</p> <p>PAGE 1/2 *RCVD AT 12/29/2003 4:35:09 PM [Eastern Standard Time]*ID:USPTO-EFXRF-1/0*DNIS:8729306*CSID:+9549251101*DURATION (mm:ss):07-14</p>
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<p>I hereby certify that this paper for Serial No. 10/647,613 is being facsimile transmitted to Technology Center 2930 of the Patent and Trademark Office on the date shown below.</p> <p><i>Karl J. Ebeling</i> <i>December 24, 2003</i> <i>(Karl J. Ebeling)</i> <i>Date</i></p>		
<u>IN THE UNITED STATES PATENT AND TRADEMARK OFFICE</u>		
<p>Applic. No. : 10/647,613 Confirmation No.: 5759 Applicant : Karl Joachim Ebeling, et al. Filed : January 15, 2003 Art Unit : 2930 Examiner : James W. Devic Title : Vertical Laser Diode with Means for Beam Profile Forming Docket No. : MeN-IT 213 Customer No. : 24132</p>		
<u>AMENDMENT</u>		
<p>Mail Stop Non Fee Amendment Attn: Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450</p> <p><i>C I A :</i></p> <p>Responsive to the Office Action dated September 24, 2003 kindly amend the above-identified application as follows:</p> <p>Amendments to the Specification begin on page 2 of this paper.</p> <p>Amendments to the Claims are reflected in the listing of claims which begins on page 10 of this paper.</p> <p>Remarks/Arguments begin on page 17 of this paper.</p>		
- 1 -		
PAGE 17 * RCVD AT 12/24/2003 6:13:10 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/0 * DNIS:8729306 * CSID:+9549251101 * DURATION (mm:ss):07:14		

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<p>Appl. No. 10/047,613 Andt. Dated December 24, 2003 Reply to Office Action of September 24, 2003</p> <p>SPECIFICATION AMENDMENTS</p> <p>Please replace the previously presented paragraph starting on page 1, line 7 with the following amended paragraph:</p> <p>The invention relates to a laser diode with a vertical resonator having a shaper for shaping the beam profile of the laser diode with at least one bleaching decolorizing absorber in a vertical resonator and to an optical system, in particular a CD player or a data transmission system, with such a laser diode</p> <p>Please replace the three previously presented paragraphs on page 2, starting on line 5 with the following three amended paragraphs:</p> <p>This object is achieved according to the invention by a laser diode with a vertical resonator having a shaper for shaping the beam profile of the laser diode with at least one bleaching decolorizing absorber in a vertical resonator.</p> <p>An important part of the invention is the introduction of a means for beam profiling, the means having at least one absorber means with a bleaching by decoloring (saturable) absorber.</p>
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- 2 -

PAGE 67 * RCVDA T 12/24/2003 6:15:30 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/0 * DNIS:8729306 * CSID:+9549251101 * DURATION (mm:ss):07-14

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=====	<p>12-24-'03 10:25 FROM:Lerner & Greenberg +9549251101 T-382 P30/32 U-245</p> <p>Appl. No. 10/647,613 Rcvd. Date December 14, 2003 Reply to Office Action of September 24, 2003</p> <p>Alternative forms of construction than the configuration outlined, with a plurality of thin depleting <u>bleaching</u> absorber layers or solid saturable structures, are of course possible. Similarly, the structure is not restricted to the InAlGaAs semiconductor system, but can also be realized for example in the material systems of InGaNp, (for example on an InP substrate) or InAlGaN (for example on a sapphire, SiC or GaAs substrate). The vertical laser structure can also be realized in II-VI semiconductor systems, such as ZnMgBeSSe for example.</p> <p>Please replace the paragraph beginning on page 10, line 25 with the following amended paragraph:</p> <p>In the embodiment described here, only one absorber means is used in the vertical resonator. It is also possible in principle, in alternative embodiments, to use the principle of transverse mode selection for integrating a plurality of depleting <u>bleaching</u> or saturable absorber means. This is appropriate in the case in which, for example, a plurality of active layers are provided in a stack of layers, as occurs in the case of a multistage vertically emitting laser diode (cascaded laser diode). In cascaded laser diodes, the active regions are electrically coupled with one another by tunnel</p>
PAGE 07 * RCVD AT 12/29/2003 6:21:10 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-10 * DNIS:8729306 * CSID:+9549251101 * DURATION (mm:ss):07-14	

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12-28-'03 10:28 FROM-Lerner & Greenberg :09549251101 T-382 P31/32 U-245 Appl. No. 10/047,613 Post. dated December 24, 2003 Reply to Office Action of September 24, 2003 diodes operated in the reverse direction, thereby achieving a higher optical gain in the vertical resonator. Please replace the paragraph beginning on page 11, line 7 with the following amended paragraph: In any event (i.e. in the case of one or more absorber means b), the optical <u>bleaching</u> by decoupling of the absorber can be additionally assisted by local current constriction.
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<p>12-24-'03 10:31 FROM-Lerner & Greenberg +9549251101 T-382 P32/32 U-245</p> <p>Appl. No. 10/047,613 Arct. Dated December 24, 2003 Reply to Office Action of September 24, 2003</p> <p>layer in said vertical resonator, said layer having a thickness greater than a quarter of a material wavelength.</p> <p>23 (currently amended): The laser diode according to claim 15, wherein said at least one absorber \leftrightarrow has a current constrictor.</p> <p>24 (previously presented): The laser diode according to claim 23, wherein said current constrictor is a combination of a medium of said absorber with one of the group consisting of an oxide aperture and proton implantation.</p> <p>25 (currently amended): The laser diode according to claim 15, wherein said at least one absorber \leftrightarrow has a means for current constriction</p> <p>26 (previously presented): The laser diode according to claim 25, wherein said current constricting means is a combination of a medium of said absorber with one of the group consisting of an oxide aperture and proton implantation.</p> <p>27 (previously presented): The laser diode according to claim 16, wherein said pn junction has a p-contact and an n-contact each to be connected to a respective one of two electrical supply loads.</p>

- 12 -

PAGE 12 * RCVD AT 12/24/2003 6:26:27 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/0 * DNIS:8729306 * CSID:+9549251101 * DURATION (mm:ss):07:14

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